

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2000-140009

(43)Date of publication of application : 23.05.2000

(51)Int.Cl.

A61F 13/15

A61F 5/44

(21)Application number : 10-327771

(71)Applicant : OJI PAPER CO LTD

(22)Date of filing : 18.11.1998

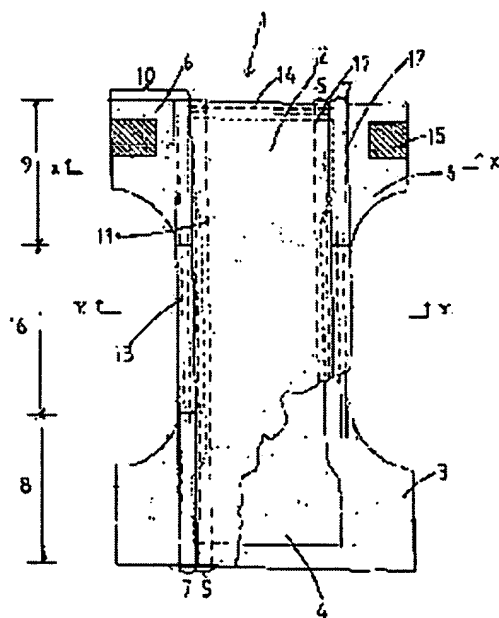
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## (54) DISPOSABLE DIAPER

## (57)Abstract:

**PROBLEM TO BE SOLVED:** To obtain a disposable diaper which prevents side spillage when lying on the side while achieving excellent wearing touch.

**SOLUTION:** An absorbing body 4 is disposed between a top sheet 2 and a back sheet 3 and a first solid gather 5 is formed over the overall length in the longitudinal direction thereof on both side rim parts of a side flap 10 extending from both side rims of the absorbing body 4 and the absorbing body 4 extending from both side rims of the absorbing body 4. A stretchable elastic member is disposed between a side sheet 6 forming the side flap 10 and the back sheet 3. Moreover, a second solid gather 7 is formed along the first solid gather 5 outside the first solid gather 5 on both side flaps of the front 8 and the back 9 of the body.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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CLAIMS

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[Claim(s)]

[Claim 1] The top sheet of liquid permeability, the backseat of liquid impermeability, and the absorber arranged among both [ these ] sheets, In the usage \*\*\*\* diaper which has the first solid gathers formed covering the overall length the side flap which extends outside, and near the longitudinal direction edges on both sides of an absorber from the longitudinal direction edges on both sides of an absorber The part into which said side flap extends outside from the longitudinal direction edges on both sides of the absorber of said backseat, Between the backseats and sideseats which are formed of the sideseat by which the laminating was carried out on it, and form a side flap in the length-from-the-crotch-to-the-cuff field of a diaper at least, the flexible elastic member is arranged in the state of elongation. furthermore, the later self at the past time -- the usage \*\*\*\* diaper characterized by forming the second solid gathers in the outside of said first solid gathers along with the first solid gathers on both the side flap at the time.

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DETAILED DESCRIPTION

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## [Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the usage \*\*\*\* diaper offered as the object for sucklings, or an object for incontinentia persons. In more detail, this invention relates to the usage \*\*\*\* diaper with which urine and a loose passage begin to leak from the flank of a diaper and which prevented the so-called horizontal leakage, when sleeping with the sideways posture.

[0002]

[Description of the Prior Art] The usage \*\*\*\* diaper has composition which has arranged the absorber which consists of hydrophilic sheet curdy pulp, a superabsorbency high polymer, etc. between the top sheet of liquid permeability, and the backseat of liquid impermeability. Since it comes to use a superabsorbency high polymer into the absorber of a disposable diaper in recent years, greatest effectiveness will be raised to leakage, reversion, etc. of urine, a loose passage, etc. However, a superabsorbency high polymer may leak, when urine, a loose passage, etc. are excreted temporarily, since urinary rate of absorption is extremely slow compared with curdy pulp. For this reason, a cure which does not leak to a lot of urine or loose passages has been needed. Moreover, in the case of the bedridden old man, it is sleeping sideways in many cases and the leakage from the venter generated in this case also poses a big problem in care.

[0003] In order to solve the problem of these leakage, arranging solid gathers on the outside of an absorber has been proposed. For example, in the diaper proposed by JP,62-153311,U, and JP,62-223303,A and JP,62-250201,A, as the end face of an inner flap is started from the top sheet located in the crosswise both sides of an absorber, solid gathers are formed. Furthermore, he is trying to start the end face of this inner flap from the crosswise both ends of an absorber in the diaper proposed by JP,4-9153,A, using some top sheets of liquid permeability as an inner flap.

[0004] Moreover, what prepared the solid gathers of dual structure as a leakage prevention function too is proposed by JP,63-219901,A, JP,2-174845,A, JP,2-71521,U, and JP,3-218752,A.

[0005]

[Problem(s) to be Solved by the Invention] Since solid gathers were one layer in the case of the diaper indicated by JP,62-153311,U, and JP,62-223303,A or JP,62-250201,A, when a lot of urine was excreted at once, urine might overcome solid gathers and leakage might arise. When in the case of the diaper furthermore indicated by JP,4-9153,A it urinated so much or the big pressure joined the absorber in the condition of having absorbed a lot of urine in urine oozing out from solid gathers etc. when the absorbance of an absorber would be in the saturation state, urine etc. may have oozed out from the crosswise side edge of an absorber.

[0006] in order that [ moreover, ] especially the diaper [ like ] indicated by JP,63-21901,A, JP,2-174845,A, and JP,2-71521,U may prevent the leakage of the excrement of the length-from-the-crotch-to-the-cuff section -- the later self from past time -- although it applies at the time and the solid gathers of dual structure are formed continuously, the bedridden old man is actually sleeping sideways in many cases, most leakage is horizontal leakage, and the solid gathers of the duplex of a length-from-the-crotch-to-the-cuff part are unnecessary. Moreover, if superfluous solid gathers are in a length-from-the-crotch-to-the-cuff part, it will also become the cause of a fall of a feeling of wearing. This invention cancels the trouble which the above-mentioned conventional usage \*\*\*\* diaper has, is effective to the horizontal leakage by the condition of sleeping with the sideways posture, and also aims the feeling of wearing of a length-from-the-crotch-to-the-cuff part at offering a good usage \*\*\*\* diaper.

[0007]

[Means for Solving the Problem] The top sheet of liquid permeability [ this invention ], and the backseat of liquid impermeability, In the usage \*\*\*\* diaper which has the first solid gathers formed covering the overall length the side flap which extends outside, and near the longitudinal direction edges on both sides of an absorber from the longitudinal direction edges on both sides of the absorber arranged among both [ these ] sheets, and an absorber The part into which said side flap extends outside from the longitudinal direction edges on both sides of the absorber of said backseat, Between the backseats and sideseats which are formed of the sideseat by which the laminating was carried out on it, and form a side flap in the length-from-the-crotch-to-the-cuff field of a diaper at least, the flexible elastic member is arranged in the state of elongation. furthermore, the later self at the past time -- it is related with the usage \*\*\*\* diaper characterized by forming the second solid gathers in the outside of said first solid gathers along with the first solid gathers on both the side flap at the time.

[0008]

[Embodiment of the Invention] As for the usage \*\*\*\* diaper of this invention, along with the first solid gathers, the second solid gathers are formed on the outside of the first solid gathers on the side flap at the order body time. The usage \*\*\*\* diaper of this invention which has such a configuration can heighten the effectiveness that urine and a loose passage begin to leak from the outside of a diaper and of preventing the so-called horizontal leakage, by work of two solid gathers formed in the side flap, when the wearer is sleeping with the sideways posture.

[0009] The top sheets used in this invention may be a hydrophilic property or a hydrophobic nonwoven fabric, textile fabrics, porous plastic film, etc., the bicomponent fiber which consists of two or more components, such as polypropylene, polyethylene, polyester, nylon or polyester, polypropylene, polyethylene, and nylon, is sufficient as the configuration fiber, and especially, although the bicomponent fiber of polyester/polyester, and polypropylene/polyethylene is desirable from a strong field, especially a limit is not received.

[0010] A top sheet does not need to consist of single sheets and may consist of sheets of two or more sheets, such as changing a sheet with an absorber top face and a flank flap. Moreover, in case a top sheet is constituted from a sheet of two or more sheets, although each sheet

may use another material, the same material is sufficient as it.

[0011] As a backseat used for this invention, the sheet made from the polyethylene of liquid impermeability etc. is employable. The sheet made from polyethylene which prepared many fine holes of extent which does not make a liquid molecule penetrate more preferably in order to prevent \*\*\*\*, Since the moisture in a diaper with excessive \*\*\*\*\* sheet of the moisture permeability which added and extended the filler to thermoplastics or compound sheet which stuck the nonwoven fabric on the outside of these sheets is emitted out of a diaper, Crowd together, \*\* or blurring stops being able to happen easily, and it can consider as a more comfortable thing in respect of moisture permeability, the touch, etc.

[0012] Although what is necessary is not to be restricted especially and for absorptivity sponge and an absorptivity sheet to be sufficient, although the absorber used in this invention mainly consists of curdy pulp and high absorptivity matter, and just to have the property of absorptivity, it is desirable to consider as the laminated structure which wrapped the whole in tissue. Moreover, although a sandglass mold, a rectangle, etc. are sufficient as the configuration of an absorber, fit nature with the better sandglass mold is obtained. The curdy pulp in this invention makes the sheet of chemical pulp, mechanical pulp, or chemical machinery pulp the shape of cotton with a grinder. As a pulp raw material, not only a needle-leaf tree but a broad-leaved tree, straw, a bamboo, and a kenaf are applied. Although it differs by whether the amount of this pulp used is used independently, or two or more laminations are carried out and it is used with the target absorber, or other absorbers are used together, generally it is made 50 - 400 g/m<sup>2</sup>. Moreover, a synthetic fiber, a heat welding component, adhesives, etc. may be contained with curdy pulp.

[0013] As superabsorbency matter, although things, such as a starch system, a cellulose system, and a synthetic polymer system, are used, the water of 20 times or more of a self-weight is absorbed, and the thing of a polyacrylic acid system is the most suitable from the point of absorptivity ability. Moreover, in the shape of fibrous, a grain, and a sheet etc., especially a limit does not have a configuration, either.

[0014] In this invention, although polyethylene, polypropylene, polyester, or the nonwoven fabric that consists of a synthetic fiber which used other thermoplastics as the raw material is used as a sideseat which forms a side flap, it is desirable, and that it is water repellence may laminate the film which used thermoplastics as the raw material at the nonwoven fabric, and it may consider as liquid impermeability.

[0015] In this invention, the first and second solid gathers are formed with the sheet which consists of a hydrophilic property or a hydrophobic nonwoven fabric, textile fabrics, porous plastic film, etc., the configuration fiber is a bicomponent fiber which consists of two or more components, such as polypropylene, polyethylene, polyester, nylon or polyester, polypropylene, polyethylene, and nylon, and especially, although the bicomponent fiber of polyester/polyester, and polypropylene/polyethylene is desirable from a strong field, especially a limit is not received. Moreover, what there is no dipping nature and has permeability is desirable. Furthermore, according to the purpose of use, a flexible elastic member may be arranged for solid gathers. If a flexible elastic member is arranged, a wearer's fit nature will also become high and the flattery nature to a motion of a wearer will also increase.

[0016] a flexible elastic member can use the flexible elastic member use for the usual usage \*\*\*\* diapers, such as an urethane film, urethane yarn, urethane foam, and yarn rubber, as it is, these flexible elastic members be arrange at the circumference section of a foot and the waist section other than a solid gathers part, respectively, and adhesion immobilization be carry out in the state of expanding by joining by water-soluble pastes, such as hot melt, a starch system, or CMC ( carboxymethyl cellulose ), fluid high adhesives or the heat, or the supersonic wave.

[0017] Furthermore, as the adhesion approach for forming the end face section of solid gathers, independent or they are [ hot melt adhesive, pressurization joining, ultrasonic welding, etc. ] combinable.

[0018]

[Example] Hereafter, although a drawing explains the usage \*\*\*\* diaper of this invention to a detail, this invention is not restricted at all by these examples. drawing 1 -- some usage \*\*\*\* diapers of this invention -- it is a notching top view. In drawing 1 The top sheet 2 of liquid permeability [ diaper / 1 / usage \*\*\*\* ], and the backseat 3 of liquid impermeability. It has the side flap 10 which extends outside from the longitudinal direction edges on both sides of the absorber 4 arranged among both [ these ] sheets, and an absorber 4. moreover, it uses in the edges on both sides of an absorber 4, and the first solid gathers 5 form covering the longitudinal direction overall length of the \*\*\*\* diaper 1 -- having -- \*\*\*\* -- further -- past time -- 8 and later self -- time -- 9 -- on the side flap 10 The second solid gathers 7 are formed in the outside of the first solid gathers 5 along with the first solid gathers 5. moreover, in the length-from-the-crotch-to-the-cuff field 16 of the usage \*\*\*\* diaper 1, the circumference of foot flexible elastic member 13 arranges in the state of elongation between the backseats 3 and sideseats 6 which form the side flap 10 -- having -- \*\*\*\* -- later self -- time -- 9 sides -- in a longitudinal direction edge field, the circumference of the waist flexible elastic member 14 arranges -- having -- \*\*\*\* -- further -- later self -- time -- 9 sides -- the FASUNINGU tape 15 is arranged at the edges on both sides of the side flap 10.

[0019] Drawing 2 is the sectional view showing the condition of having cut the usage \*\*\*\* diaper of drawing 1 along with the X-X' line. In drawing 2, the side flap 10 is formed of the part which the usage \*\*\*\* diaper 1 comes to arrange an absorber 4 between the top sheet 2 and a backseat 3, and extends from the edges on both sides of the absorber 4 of a backseat 3, and the sideseat 6 arranged on this, and the circumference of foot flexible elastic body 13 is arranged between the backseats 3 and sideseats 6 which form the side flap 10. Moreover, the edges-on-both-sides section of the top sheet 2 is turned up, the flexible elastic member 11 is arranged in the state of elongation inside the turned-up part, and the first solid gathers 5 which stand up up are formed by making into the standing up point 17 the part located in the edges-on-both-sides section on an absorber 4. Furthermore, the sheet of another object is arranged on a sideseat 6 in the top sheet 2, a backseat 3, and a sideseat 6. The flexible elastic member 12 is arranged in the state of elongation at the side edge section located in the outside of the diaper. Moreover, the side edge section located inside a diaper is joined on a sideseat 6, and the second solid gathers 7 which stand up in the direction of an outside of a diaper 1 are formed by making the sideseat 6 top of the outside of the standing up point 17 of the first solid gathers 5 into the standing up point 18.

[0020] Drawing 3 shows the sectional view in the condition of having cut the usage \*\*\*\* diaper of drawing 1 along with the Y-Y' line. In drawing 3, only the first solid gathers 5 are formed in the usage \*\*\*\* diaper 1 along with the edges-on-both-sides section on an absorber 4, and the second solid gathers do not exist in it.

[0021] It is the sectional view in which drawing 4 shows the condition of having cut the usage \*\*\*\* diaper of drawing 1 which drawing 2 shows a different example along with the X-X' line. In drawing 4, in the top sheet 2, the backseat 3, and the sideseat 6, the second solid gathers 7 are formed with the sheet of another object, and have stood up in the direction of the inside of a diaper 1 by making the sideseat 6 top of the side flap 10 into the standing up point 18.

[0022]

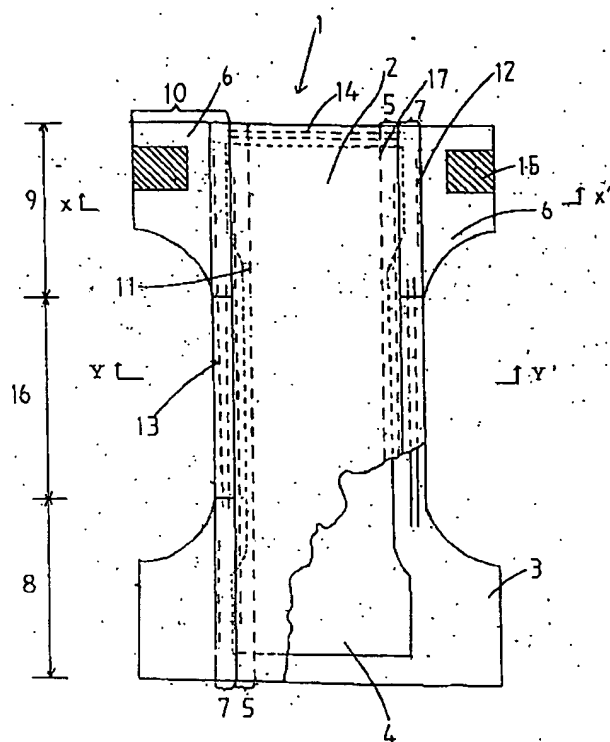
[Effect of the Invention] As mentioned above, in the usage \*\*\*\* diaper in this invention, since the second solid gathers be form along with

the first solid gathers on the outside of the first solid gathers on the side flap at the order body time, it also enable the feeling of wearing of a length-from-the-crotch-to-the-cuff field to be effective to the horizontal leakage by the condition of sleeping with the sideways posture, and to offer a good usage \*\*\*\* diaper. Moreover, in such a usage \*\*\*\* diaper of a configuration in this invention, a cheap diaper with few amounts of a material than the usage \*\*\*\* diaper which has the solid gathers of the conventional duplex can be offered.  
[0023]

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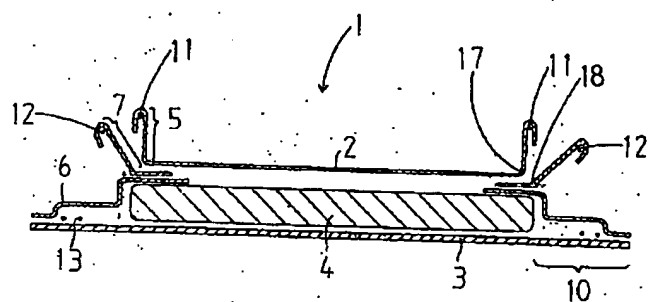
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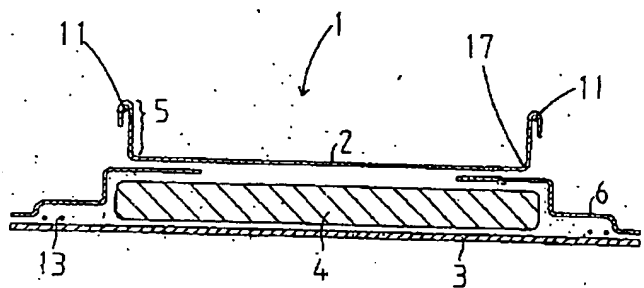
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Drawing selection drawing 3

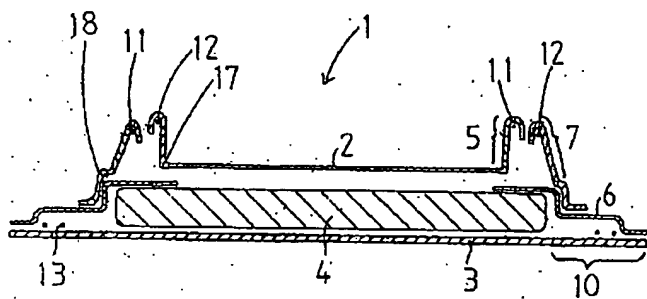


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Drawing selection drawing 4



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